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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,282	04/24/2000	Arasanipalai K. Ananthapadmanabhan	PA000275	8121

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Qualcomm Incorporated
Patents Department
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EXAMINER

STORM, DONALD L

ART UNIT	PAPER NUMBER
2654	17

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. .09/557,282	Applicant(s) ANANTHAPADMANABHAN ET.AL.	
	Examiner Donald L. Storm	Art Unit 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2003 and 27 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11,13-20 and 22-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11,13-20 and 22-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Informalities

1. Claim 4 is objected to under 37 CFR 1.75(a) because the meaning of the phrase "the parameter" needs clarification. Because a set of parameters and each parameter of that set was previously recited, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phrase to refer to --a parameter of the set--.
2. Claims 5-6, 14-16, and 23-25 are objected to; each is objected to for the same reasons as claim 4 because the limitations are recited using obviously similar phrases.
3. The Examiner notes, without objection, the possibility of informalities in the claims. The Applicant may wish to consider changes during normal review and revision of the disclosure.
 - a. In claim 10, line 2, should the phrase "about a each" be --about each--?
 - b. In claim 11, line 2, should the phrase "about a each" be --about each--?

Claim Rejections - 35 USC § 103

Fette and Kleider

4. Claims 1, 3-6, 10, 11, 13-16, 20, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al. [US Patent 5,255,339] in view of Kleider [US Patent 6,301,265], both already of record.

5. Regarding claim 10, phraseology in the preamble limits the structure of the claimed apparatus and is essential to point out the invention defined by the claim. The claim preamble, when read in the context of the entire claim, recites limitations of the claimed "set of parameters". Antecedence in the preamble gives meaning to "each parameter" recited in the body of the claim, which is unable to stand alone. Accordingly, the Examiner has given the effect of claim limitations to the structural element recited in the preamble: "a set of parameters", as if it were in the balance of the claim. It is not merely a statement of field of use; instead it is enmeshed with the ensuing language of the claim.

Fette [at abstract] describes a speech coder to quantize information about speech, for which a sum of weights has the value one. The value one is taught as the +1 end of a range of values and is taught as a division of a value by itself. Fette's ^{coder} ~~code~~ ^{bits} comprises:

a set of parameters of speech [at column 5, lines 40-68, as pitch, energy, and LPC10 spectrum parameters of speech];

each parameter for a plurality of previously processed frames [at column 6, lines 20-29 as speech parameters for N successive frames, with N=4 for example pitch, at column 13, lines 45-65, as Pitch(1), Pitch(2), and Pitch (3) of frames m=1, 2, 3 processed before the current frame m=4];

means for generating a plurality of values of each parameter for a plurality of previously processed frames of speech [at column 14, lines 57-60, as speech analyzer extracts spectrum, pitch, and energy of four frames of speech];

weights [at column 11, lines 63-66, as weighted energy, periodicity, and LPC residual, and pitch, at column 13, line 63-64, as $Pweight(m)$ divided by $Sum(m=1,4)(Pweight(m))$];

the values of each parameter are weighted values [at column 11, lines 63-66, as energy, periodicity, and LPC residual should be weighted, and pitch, at column 13, line 63-64, as $(Pweight(m)*Pitch(m))$ divided by $Sum(m=1,4)(Pweight(m))$];

the sum of all weights for each parameter used is one [at column 11, lines 65-68, as the weighted parameters should be summed in the range +1 to -1, and pitch, at column 13, line 63-64, as $Sum(m=1,4)(Pweight(m))$ divided by $Sum(m=1,4)(Pweight(m))$];

a sum of the plurality of weighted values [at column 11, lines 59-62, as voiced is sum of votes from features correlated with voicing, and at column 13, lines 63-64, as $AvgPitch = SUM$].

Fette does not explicitly describe any currently processed frames of speech other than the m th frame of the super frame. However, Fette [at column 15, lines 47-51] points out that is obvious that the same processing repeats and continues. In view of this description by Fette, it would have been obvious to one of ordinary skill in the art of processing framed speech at the time of invention that Fette's passing speech necessarily provides 4 subsequent frames that become frames $m=1,2,3$, and a currently processed frame $m=4$, which provide the next values of pitch, energy, LPC10 spectrum, weights, voicing, and $AvgPitch$ of the new, next currently processed frame. According, Fette makes obvious the limitation:

a value of each parameter for a currently processed frame of speech [as pitch, energy, LPC10 spectrum, weights, voicing, and $AvgPitch$ of the new, next currently processed frame].

Fette [at column 7, line 59-column 8, line 5] selects and uses different modes of quantization and coding for superframes of up to four speech frames. However, Fette does not explicitly choose a subtraction and difference-coding alternative for the quantization.

Kleider [at column 14, lines 30-37] also describes a speech coder and quantizer. Like Fette, Kleider [at column 4, lines 28-41] selects and uses different modes of quantization and

coding for superframes of voicing, pitch, energy, etc. As one of the selectable quantization and coding modes, Kleider describes:

means for subtracting the value for a parameter for a current frame of speech to yield a difference [at column 7, line 67-column 8, line 1, as a delta quantizer characterizes the change from the previous frame]; and

means for quantizing the difference [at column 5, lines 54-56 and column 7, line 67-column 8, line 1, as a delta quantizer implements coding changes since a previous frame].

Thus Fette with Kleider makes obvious:

a sum of Fette's weighted values [as, voicing is a sum, and AvgPitch calculated as the sum]; and

Kleider's delta coding for subtracting that sum from the value of the parameter for a currently processed frame [as subtract voicing and AvgPitch for the previous superframe from the voicing and AvgPitch for the current superframe].

Both Fette [at column 7, lines 59-63] and Kleider [at column 1, lines 21-23] describe solutions to effective coding of speech using alternative quantization methods to adapt the transmission rate. Both Fette and Kleider use a superframe constructed from sequences of speech frames. In view of the commonalities of Fette and Kleider, it would have been obvious to one of ordinary skill in the art of speech coding at the time of invention to include Kleider's concept of delta coding for superframe parameters as a choice for coding Fette's superframe. Using Kleider's concept with Fette would provide an advantageous alternative because Kleider [at column 2, lines 36-59] points out that it controls bit rate based on network conditions and allows graceful degradation with packet errors.

6. Claim 11 is set forth with limitations similar to claim 10. Fette and Kleider describe and make obvious those limitations as indicated there, where Fette's and Kleider's quantizer and coder are infrastructure elements.

7. Claims 13-16 are rejected using the same rationale as in the prior Office action (paper 13).

8. Claim 1 sets forth a method with limitations comprising the functionality associated with using the apparatus recited in claim 11, where Fette and Kleider describe make obvious subtracting the plurality of each weighted parameter, by describing the example for pitch as $(Pweight(m) * Pitch(m))$ divided by $Sum(m=1,4)(Pweight(m))$, because the parameter for frame 3 is added to parameter for frame 2, which is added to the parameter for frame 1 when forming the AvgPitch. Thus, subtracting the sum necessarily subtracts each value that was summed. (Addition and subtraction may occur in any order because they are commutative.) Because Fette and Kleider describe and make obvious the similar limitations of claim 11 as indicated there, this claim thus is unpatentable accordingly.

9. Claims 3-6 are rejected using the same rationale as in the prior Office action (paper 13).

10. Claims 20 and 22-25 are set forth with limitations similar to claims 11, 13-16 respectively. Fette and Kleider describe and make obvious those limitations as indicated there. Fette also describes additional limitations as follows:

a processor [at column 5, lines 33-34, as microprocessor]; and

a storage medium coupled to the processor and containing instructions executable by the processor [at column 5, lines 34-38, as microprocessor acts to execute instructions stored in ROM].

Fette and Kleider and Marston

11. Claims 7-9, 17-19, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fette et al. [US Patent 5,255,339] in view of Kleider [US Patent 6,301,265] and Marston [EP 0 987 680 A1] using the same rationale as in the prior Office action (paper 13).

Response to Arguments

12. The prior Office action, mailed June 24, 2003 (paper 13), objects to the claims, and rejects claims under 35 USC § 103 citing Fette and others. The Applicant's arguments and changes in RESPONSE TO OFFICE ACTION filed February 27, 2004 (paper 16) have been fully considered with the following results.

13. With respect to objection to those claims needing clarification, the changes entered by amendment provide clear descriptions of that claimed subject matter. Accordingly, the objections are removed. Please see new grounds of objection.

14. With respect to rejection of claims under 35 USC § 103, citing Fette in combination, the Applicant's arguments appear to be as follows:

a. The Applicant's argument appears to reiterate the contention that describing a range that includes the value "+1" does not meet the limitation of "one". This argument is not

persuasive using the same rationale as in the previous Office actions (paper 13 and paper 8), which basically say that Fette's summed values constrain the sums to unity for those sums that equal "1".

b. The Applicant's argument appears to reiterate the contention that all weights used for a particular parameter for previous and current frames should sum to unity, not the sum of different parameters within a previous or current frame. This argument is not persuasive using the same rationale as in the previous Office actions (paper 13 and paper 8), which basically say (1) that summing across frames is not recited in the claims and (2) Fette explicitly describes it, using pitch as the exemplary parameter.

The Applicant's arguments have been fully considered but they are not persuasive. Accordingly, the rejections are maintained.

Conclusion

15. Any response to this action should be mailed to:

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for formal communications; please mark "EXPEDITED
PROCEDURE")

Or:

(703) 872-9306, (for informal or draft communications, and please label
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA (Sixth Floor, Receptionist).

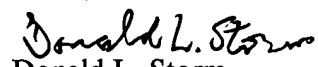
16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

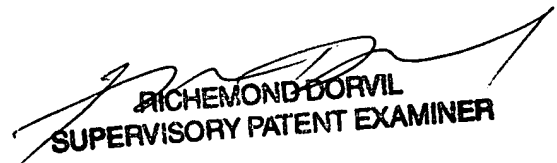
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Art Unit 2654, whose telephone number is (703) 305-3941. The examiner can normally be reached on weekdays between 8:00 AM and 4:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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Donald L. Storm
April 7, 2004


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SUPERVISORY PATENT EXAMINER